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REMARKS

Claims 1-22 are pending. Support for new claim 20 is found on page 46, line 36.  
Support for new claims 21-22 is found on page 41, line 24 through page 43, line 30.

The applicants note that due to the addition of new claims 20-22, the inventorship on this case will be amended; C.J. Yu of Clinical Micro Sensors, Inc. will be added. New declarations are being prepared.

As a preliminary matter, the applicants thank the Examiner for the opportunity to interview this case on March 7, 2000. The Examiner asked applicants to point out areas in the specification directed to the orientation of the system to allow recruitment of ETMs to the surface. Accordingly, the Examiner's attention is respectfully drawn to page 9, lines 14-16 and lines 34-37; page 53, line 3, line 7, lines 9-11, lines 17-21 and lines 28-30 and page 54, lines 4-5. All of these citations point out that the recruitment linker is used to bring the ETMs into spatial proximity of the monolayer surface on the electrode.

The Examiner states that some of the references cited in the Information Disclosure Statement were not considered because the references were not supplied, not supplied in English, not supplied beyond the abstract, or not supplied so that the reference could be identified on the information disclosure statement.

Section 609A(2) of the M.P.E.P. states that the following types of printed material are considered to be legible copies for purposes of consideration by the Examiner. These are:

(A) Each U.S. and foreign patent;

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- (B) Each publication or that portion which caused it to be listed; and
- (C) All other information or that portion which caused it be listed, except that no copy of a U.S. patent application need be included.

Five of the six references lined out by the Examiner are either portions of a publication or other information causing them to be listed. The sixth reference, WP94/22889 is a PCT application written in a non-English language. Although applicants are not required to submit an English translation of this patent, applicants have done so in order to expedite prosecution. See M.P.E.P. § 609A(2). A copy of the English version of the patent, along with copies of the other five references accompanies this Amendment. Accordingly, applicants request withdrawal of the rejection.

The applicants note the informality of the drawings. Formal drawings will be submitted upon allowance; however, as the Examiner requested in the interview, clear copies of Figures 14-18 are enclosed.

The Examiner states that the application does not meet the sequence ID listing requirements. A sequence ID listing is included herewith.

Claims 3-4 and 11-12 are rejected under 35 U.S.C. §112, second paragraph, for the recitation of "ETM". The claims have been amended for proper antecedent basis.

Claims 2-10 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite in the recitation of "assay complex". The Examiner invites the applicants to specifically

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reference the definition within the specification; accordingly, the Examiner's attention is respectfully drawn to page 61, lines 2-7, wherein the term "assay complex" is defined.

Claims 11-12 and 16-19 are rejected under 35 U.S.C. §112, second paragraph, for the recitation of "attached". The Examiner states that applicants have not specifically claimed the method of attaching the target nucleic acid to the electrode. Without admitting the propriety of the rejection, claim 11 has been amended to recite forming a hybridization complex including the target sequence and a capture probe on the electrode. Thus, as dependent claims 13, 14 and 15 make clear, this hybridization complex can comprise the target sequence and the capture probe; the target sequence, the capture probe and a first capture extender probe; the target sequence, the capture probe and two capture extender probes; etc.

Accordingly, the rejections under 35 U.S.C. §112, second paragraph, should be withdrawn.

Claims 1 and 13-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Meade et al. and Ihara et al.; in view of Collins et al.

As a preliminary matter, the applicants point out that there are a number of related Meade patents, including 5,591,578; 5,824,473; 5,770,369; 5,705,348; 5,780,234; and 5,952,172, as well as a number of pending applications, including 08/946,679; 09/100,507; 09/306,749; 09/306,737; 09/306,768; 09/454,498; 09/459,751; 09/459,191; 09/454,497; and 09/458,187.

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Meade et al. disclose systems based on electron transfer between electron transfer moieties (ETMs) attached to double-stranded nucleic acids. However, as discussed in the interview, Meade et al. do not suggest the use of label probes that have a portion that do not hybridize to any components of the assay complex. In addition, Meade et al. do not disclose the use of self-assembled monolayers (SAMs) as set forth in the claims.

Ihara et al. disclose the use of nucleic acids on surfaces that comprise ferrocene. Contrary to the Examiner's position, and as discussed in the interview, Ihara et al. does not teach SAMs. Similarly, Ihara et al. does not teach the use label probes that have a portion that do not hybridize to any components of the assay complex.

Collins et al. disclose the use of multiple probes.

The Examiner's position appears to be that it would be obvious to combine the references with a reasonable expectation of success. However, as discussed in the interview, neither reference, taken alone or in conjunction, teaches or suggests the present invention.

Accordingly, the applicants submit that the claimed invention, taken as a whole at the time the invention was made, would not have been obvious to a person of skill in the art, and the rejection should be withdrawn.

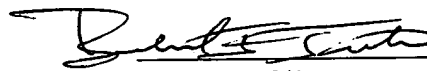

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The applicants submit that the claims are now in condition for allowance and an early notification of such is solicited. If, after review, the Examiner feels that there are further unresolved issues, the Examiner is invited to call the undersigned at (415) 781-1989.

Respectfully submitted,

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